

FORM PTO-1390	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371	ATTORNEY'S DOCKET NUMBER: 4227/MS/cs U.S. APPLN. NO. (If known, see 37 CFR 1.5) 09/701794
INTERNATIONAL APPLICATION NO.: PCT/IT98/00149	INTERNATIONAL FILING DATE: 04 June 1998	PRIORITY DATE CLAIMED: 1
TITLE OF INVENTION: PROCESS FOR CARRYING OUT VIDEOCONFERENCES WITH THE SIMULTANEOUS INSERTION OF AUXILIARY INFORMATION AND FILMS WITH TELEVISION MODALITIES		
APPLICANT(S) FOR DO/EO/US: Roberto TRINCA		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1.	<input checked="" type="checkbox"/>	This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2.	<input type="checkbox"/>	This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3.	<input checked="" type="checkbox"/>	This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4.	<input checked="" type="checkbox"/>	A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5.	<input checked="" type="checkbox"/>	A copy of the International Application as filed (35 U.S.C. 371(c)(2))
	a. <input checked="" type="checkbox"/>	is transmitted herewith (required only if not transmitted by the International Bureau).
	b. <input type="checkbox"/>	has been transmitted by the International Bureau. (see attached copy of PCT/IB/308)
	c. <input type="checkbox"/>	is not required, as the application was filed in the United States Receiving Office (RO/US).
6.	<input type="checkbox"/>	A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7.	<input type="checkbox"/>	Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
	a. <input type="checkbox"/>	are transmitted herewith (required only if not transmitted by the International Bureau).
	b. <input type="checkbox"/>	have been transmitted by the International Bureau.
	c. <input type="checkbox"/>	have not been made; however, the time limit for making such amendments has NOT expired.
	d. <input type="checkbox"/>	have not been made and will not be made.
8.	<input type="checkbox"/>	A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9.	<input checked="" type="checkbox"/>	An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10.	<input type="checkbox"/>	A translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
Item 11. to 16. below concern document(s) or information included:		
11.	<input checked="" type="checkbox"/>	An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12.	<input type="checkbox"/>	An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13.	<input checked="" type="checkbox"/>	A FIRST preliminary amendment.
	<input type="checkbox"/>	A SECOND or SUBSEQUENT preliminary amendment.
14.	<input type="checkbox"/>	A substitute specification.
15.	<input type="checkbox"/>	A change of power of attorney and/or address letter.
16.	<input checked="" type="checkbox"/>	Other items or information:
International Preliminary Examination Report (PCT/IPEA/409) International Search Report (PCT/ISA/210) Application Data Sheet		

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 09/701794		INTERNATIONAL APPLICATION NO. PCT/IT98/00149		ATTORNEY'S DOCKET NO. 4227/MS/cs	
17. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$ 1,000.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$ 860.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$ 710.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$ 690.00 International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$ 100.00 <div style="text-align: right;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>				CALCULATIONS PTO USE ONLY	
Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	31 - 20 =	11	X \$18.00	\$	198.00
Independent claims	2 - 3 =	0	X \$80.00	\$	
MULTIPLE DEPENDENT CLAIMS(S) (if applicable)			+ \$270.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$	1,058.00
Reduction of 1/2 for filing by small entity, if applicable. Applicant claims Small Entity Status under 37 CFR 1.27.				\$	529.00
SUBTOTAL =				\$	529.00
Processing fee of \$130 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.49(f)).				\$	
TOTAL NATIONAL FEE =				\$	529.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	
TOTAL FEES ENCLOSED =				\$	529.00
				Amount to be refunded:	
				charged:	
a.	<input checked="" type="checkbox"/>	A check in the amount of \$ 529.00 to cover the above fees is enclosed.			
b.	<input type="checkbox"/>	Please charge my Deposit Account No. 25-0120 in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.			
c.	<input checked="" type="checkbox"/>	The Commissioner is hereby authorized to charge any additional fees which may be required by 37 CFR 1.16 and 1.17, or credit any overpayment to Deposit Account No. 25-0120 . A duplicate copy of this sheet is enclosed.			
SEND ALL CORRESPONDENCE TO:					
Customer No. 000466		December 4, 2000		By <u>Benoît Castel</u>	
YOUNG & THOMPSON 745 South 23rd Street 2nd Floor Arlington, VA 22202 (703) 521-2297 facsimile (703) 685-0573		Benoît Castel Attorney for Applicant Registration No. 35,041			

PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Roberto TRINCA

Serial No. (unknown)

Filed herewith

PROCESS FOR CARRYING OUT
VIDEOCONFERENCES WITH THE
SIMULTANEOUS INSERTION OF
AUXILIARY INFORMATION AND
FILMS WITH TELEVISION MODALITIES

PRELIMINARY AMENDMENT

Commissioner for Patents

Washington, D.C. 20231

Sir:

Prior to the first Official Action and calculation of the filing fee, please substitute page 3 of the specification as originally filed, with pages 3, 3bis and 3ter as filed in the Article 34 amendment of 8 March 2000.

Also, please substitute pages 16 and 18 of the claims as originally filed, with pages 16 and 18 also filed in the Article 34 amendment of 8 March 2000. The replacement pages are marked "AMENDED SHEET" and are attached hereto. Following the insertion of the amended claim pages 16 and 18, please amend these claims as follows:

IN THE CLAIMS:

Claim 4, line 1, change "the preceding claims," to
--claim 1,--.

Roberto TRINCA

Claim 5, line 1, change "the preceding claims," to
--claim 1,--.

Claim 6, line 1, change "the preceding claims," to
--claim 1,--.

Claim 7, line 1, change "the preceding claims," to
--claim 1,--.

Claim 10, line 1, change "claims 8 and 9," to
--claim 9,--.

Claim 11, line 1, change "claims 8, 9 and 10," to
--claim 10,--.

Claim 12, line 1, change "claims 8, 9, 10 and 11,"
to --claim 11,--.

Claim 13, lines 1 and 2, change "claims 8, 9, 10, 11
and 12," to --claim 12,--.

Claim 14, line 1, change "claims from 8 to 13," to
--claim 13,--.

Claim 15, line 1, change "claims from 8 to 14," to
--claim 14,--.

Claim 16, line 1, change "claims from 8 to 15," to
--claim 15,--.

Claim 17, line 1, change "claims from 8 to 16," to
--claim 16,--.

Claim 18, line 1, change "claims from 8 to 17," to
--claim 17,--.

Roberto TRINCA

Claim 19, line 1, change "claims from 8 to 18," to
--claim 18,--.

Claim 20, line 1, change "claims from 8 to 19," to
--claim 19,--.

Claim 21, line 1, change "claims from 8 to 20," to
--claim 20,--.

Claim 22, line 1, change "claims from 8 to 21," to
--claim 21,--.

Claim 24, line 1, change "claims from 8 to 23," to
--claim 23,--.

Claim 25, line 1, change "claims from 8 yo 24," to
--claim 24,--.

Claim 26, line 1, change "claims from 8 to 25," to
--claim 25,--.

Claim 29, line 1, change "claims from 8 to 28," to
--claim 28,--.

Claim 30, line 1, change "the preceding claims," to
--claim 8,--.

Claim 31, line 1, change "the preceding claims," to
--claim 8,--.

R E M A R K S

The above changes in the specification and claims merely place this national phase application in the same condition as it was during Chapter II of the international phase, with the multiple dependencies being removed. Follow-

Roberto TRINCA

ing entry of this amendment by substitution of the pages, only
claims remain pending in this application.

Respectfully submitted,

YOUNG & THOMPSON

By



Benoît Castel
Attorney for Applicant
Customer No. 000466
Registration No. 35,041
745 South 23rd Street
Arlington, VA 22202
Telephone: 703/521-2297

December 4, 2000

A further disadvantage of the currently viable videoconferences, is given by the fact that it is not possible to superimpose titles, subtitles, abbreviations, speakers' names, musical themes and soundtracks, and all audio and video effects that can make of a "flat" and static videoconference a real television programme.

In this respect, it is useful to observe that said problems and drawbacks have not only got purely aesthetic consequences, but they also cause a rapid decrease in the level of attention of the attendants, which is an extremely important factor for the success of a conference of whatever type.

It is also Known, from EP-A-0619679, a multi-location television conference system that connects five locations A, B, C, D, and E, when speeches take place at the four locations A, B, C, and D at the same time, at a listening location E, images of all the speaking locations A, B, C, and D are displayed on one screen with four divided screen areas. On the other hand, at the speaking location A, images of the speaking locations B, C, and D and an image of the former speaking location E are displayed on one screen with four divided screen areas. In addition, when images of speaking locations are displayed, locations names thereof are also displayed. Thus, a television conference held at a plurality of locations at a time can be smoothly managed as with a real conventional conference.

A first disadvantage of this conference system is

SECRET

that it does not allow the connection among systems having different transmission protocols, different type of signals or different technologies.

A second disadvantage of EP-A-0619679 is that said limitations prevent the simultaneous connection and use of quite different transmission channels such as satellite, computer network, telephone lines, internet, and so on.

A third disadvantage of EP-A-0619679, is that the information that can be displayed on the screen of each user, by superimposition with the images of the most recent speaker/s, are very limited and require the use and the creation of identification codes.

A fourth disadvantage of EP-A-0619679 is the i it does not provide means for substitute the audio signal of one or more user with the audio signal coming from a simultaneous-translation room that translate, in real-time, the discourse of the speaker in that of the user.

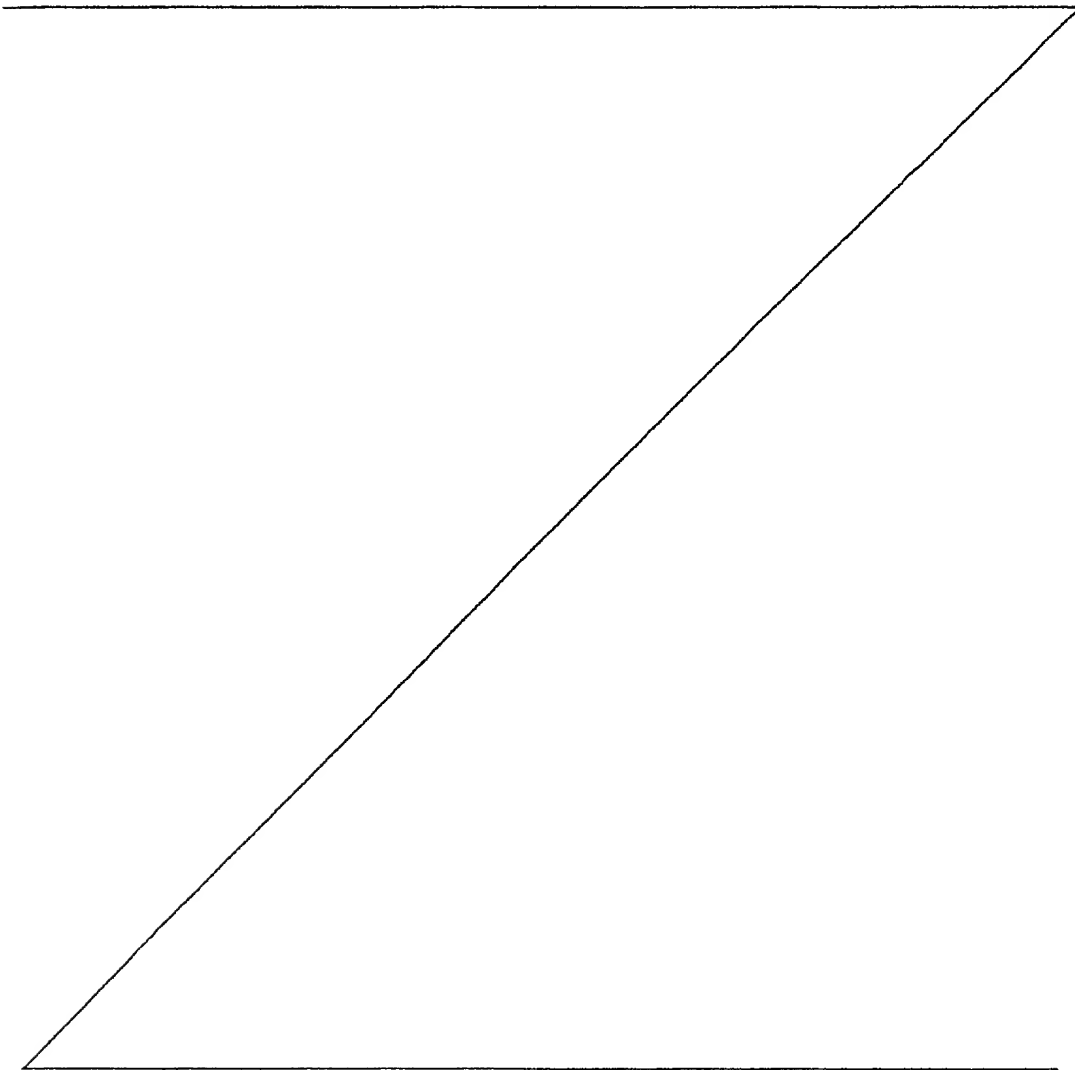
Another disadvantage of the system disclosed in EP-A-0619679 is that the switching of the images displayed is submitted to the detection of an audio signal.

A first aim of the present invention is that of allowing the course of videoconferences (congresses, debates, presentations, lectures, etc.) with the utilization of audiovisual contributions such as films, slides, photographs, animated computer aided design, graphs, music and/or soundtracks etc.

A second aim of the present invention is that of guaranteeing an orderly and fluent course of a

videoconference, thanks to the audio-visual commutations carried out by the operators of the direction room, and by the possible presence of a chairperson, who is meant to allow the user to personally take part in the debate, only at the most suitable moment.

A third aim of the present invention is that of giving the possibility to attend a conference even to Internet users. Furthermore, through a series of



CLAIMS

1. Process for carrying out and managing videoconferences among a plurality of users locations suitable to receive and transmit audio-video signals and located at whatever distance, using whatever communication protocol, characterised by the fact that it comprises the following steps:

- link-up a direction room (1) to a plurality of both remote and neighbour locations (2), where a signal of the audio video type (AV) is originated;
- conversion of the audiovisual signal (AV) from each location (2), before its transfer from the place where it was generated to that where the direction room is located (1), so as to make it suitable to the type of connection and transmission which are being utilised;
- Reconversion of the signal (AV) which has been received into the audio video format, before its arrival at the direction room (1);
- Selection of the signal or signals to use and send away to the attendants and the speaker respectively, by an input audio video matrix (MV1);
- Addition of the contributions and the necessary audio and/or video effects, as well as of titles, soundtracks, comments, images, graphs and so on, by a video mixer or a computer having similar functions;
- Selection of the processed audio video signals (AV) and sending thereof to the several remote locations (2), according to the role that the users who are there located play at that moment (i.e. attendants or speakers).

2. Process according to claim 1, characterised by

11 00 00 00

suitable audio signal (A1, A2,..., An) has been associated, i.e. the one that corresponds to the translation required by the user.

6. Process according to the preceding claims, characterised by the fact that more than one user can receive the same audio video signal (AV).

7. Process according to the preceding claims, characterised by the fact that it provides for the recording of the audio video signal for the purpose of archive or else, so well as it is actually seen by the attendants, that is enriched with the audiovisual contributions and the television effects that have been added, by a suitable videotape recorder (VD2) that receives the output signal of a video mixer (MIX) or computer with similar functions.

8. Apparatus for carrying out and managing videoconferences among a plurality of users located at whatever distance and using whatever communication protocol, characterised by the fact that it comprises a plurality of remote and/or neighbour user-locations (2), of the interactive or multimedial type which are linked to a direction room (1) which exchanges a signal (AV) of the analog and/or digital audiovisual type with them.

9. Apparatus according to claim 8, characterised by the fact that said signal (AV) contains a series of information relative to the conference and the speaker or the speakers that are scheduled to talk, as well as

PROCESS FOR CARRYING OUT VIDEOCONFERENCES WITH THE SIMULTANEOUS INSERTION OF AUXILIARY INFORMATION AND FILMS WITH TELEVISION MODALITIES

DESCRIPTION

The present invention relates to the field of multimedia communications, and more particularly a process and apparatus therefor for videoconferences that provides link-ups among several attendants and
5 with extremely variable characteristics and modalities, adaptable to any specific need of the user.

Currently, multiple user videoconference apparatus and techniques are known, and despite being based on different execution parameters, they make the choice of
10 the image to be shown to the attendants on the grounds of the audio signal coming from the attendants themselves, which is technically called "audio presence".

In other words, the sound received by the
15 microphone located at every equipped location gets to the centralised videoconference management device. This device shows all the attendants the image of the user that has generated the sound impulse. In such a way, all the attendants receive the image of the person
20 that is speaking at that precise moment of time on their screens. It is therefore clear that if two or more users speak at the same time, the conference management device carries out image commutations on a continuous basis, causing considerable disruptions and
25 chaos all along the course of the videoconference

itself.

Attention is also drawn to the fact that a user is allowed into a dialogue which has already started, even because of a background noise from his own environment, which could be completely independent from his will but is detected by the microphone located at his place.

Currently, in order to resolve such problems, it is necessary to turn off one's own microphone (but this risks turning an interesting debate into an endless monologue).

This type of automatic commutation caused by the audio presence, necessarily requires the presence of an interpreter next to each single attendant, in case of videoconferences that involve people speaking different languages.

Besides this, current technology does not always provide carrying out a link-up between different videocommunication systems. The apparatus which are currently being used in fact only allow file transmission and/or sharing just in case the link-up devices of the several attendants are made by the same manufacturer, in so doing drastically limiting the possibilities of employment of the system itself (file sharing, transmission and transfer, etc.).

A further problem of the prior art is given by the fact that the possibility of executing fadings among the images of the speakers that make their contributions along the way, and possible audio-video contributions, whether they be films, photographs, static images, graphs and so on, is ruled out.

Att 34

A further disadvantage of the currently viable videoconferences, is given by the fact that it is not possible to superimpose titles, subtitles, abbreviations, speakers' names, musical themes and soundtracks, and all audio and video effects that can make of a "flat" and static videoconference a real television programme.

In this respect, it is useful to observe that said problems and drawbacks have not only got purely aesthetic consequences, but they also cause a rapid decrease in the level of attention of the attendants, which is an extremely important factor for the success of a conference of whatever type.

It is also Known, from EP-A-0619679, a multi-location television conference system that connects five locations A, B, C, D, and E, when speeches take place at the four locations A, B, C, and D at the same time, at a listening location E, images of all the speaking locations A, B, C, and D are displayed on one screen with four divided screen areas. On the other hand, at the speaking location A, images of the speaking locations B, C, and D and an image of the former speaking location E are displayed on one screen with four divided screen areas. In addition, when images of speaking locations are displayed, locations names thereof are also displayed. Thus, a television conference held at a plurality of locations at a time can be smoothly managed as with a real conventional conference.

A first disadvantage of this conference system is

that it does not allow the connection among systems having different transmission protocols, different type of signals or different technologies.

A second disadvantage of EP-A-0619679 is that said limitations prevent the simultaneous connection and use of quite different transmission channels such as satellite, computer network, telephone lines, internet, and so on.

A third disadvantage of EP-A-0619679, is that the information that can be displayed on the screen of each user, by superimposition with the images of the most recent speaker/s, are very limited and require the use and the creation of identification codes.

A fourth disadvantage of EP-A-0619679 is the i it does not provide means for substitute the audio signal of one or more user with the audio signal coming from a simultaneous-translation room that translate, in real-time, the discourse of the speaker in that of the user.

Another disadvantage of the system disclosed in EP-A-0619679 is that the switching of the images displayed is submitted to the detection of an audio signal.

A first aim of the present invention is that of allowing the course of videoconferences (congresses, debates, presentations, lectures, etc.) with the utilization of audiovisual contributions such as films, slides, photographs, animated computer aided design, graphs, music and/or soundtracks etc.

A second aim of the present invention is that of guaranteeing an orderly and fluent course of a

[illegible]

A square with a diagonal line from the bottom-left corner to the top-right corner.

RECEIVED 6-17-67

procedures and suitable links, which will be analysed in detail in the foregoing, giving the possibility to any single spectator who is suitably equipped to directly enter and take part in the conference, contributing to it with his own image and his own audio (even if not originally scheduled).

A fourth aim of the present invention is that of guaranteeing compatibility between different videocommunication systems, utilising the most suitable interfaces and transforming the ensemble of the videoconference into many point-point links (user-direction) with personalised characteristics and communication protocols.

To this purpose attention is drawn to the fact that attendants, whether they be interactive or not, can be both remote and local and numberwise limitless.

These and other aims have been accomplished according to the invention, by proposing a process and an apparatus for the production and management of videoconferences, wherein audiovisual signals coming from a plurality of remote and/or neighbour locations, are acquired and elaborated by a direction room capable of dealing with and selecting both the audio and the video signal, adding audiovisual contributions like television effects, partial or total image superimposition, insertion of graphs, tables, films or soundtracks, audio commentaries, and so on.

According to the process and the apparatus which are herein described, it is also possible to provide a centralised interpretation service, discriminating on

the audio supplied by the users as a function of their language.

A better understanding of the present invention will be gained thanks to the following detailed description with reference to the appended drawings, which schematically illustrate a preferred embodiment of the invention.

In the drawings:

Fig. 1 schematically illustrates the parts making up the direction room according to the present invention;

Fig. 2 is a scheme illustrating the modalities and possibilities of link-up between the direction room and remote and/or neighbour users, by use of telephone lines, via satellite, via Internet, and so on.

With reference to the abovementioned figures, the process object of the present invention comprises the following stages:

-link-up in a direction room 1 with a plurality of remote and/or neighbour locations 2, which generate an audio video signal AV;

-conversion, if necessary, of the audiovisual signal AV from every location, before its transfer from the place where it is generated to that where the direction room 1 is located, to adapt it to the type of connection and transmission which is employed;

-reconversion of the received signal, if necessary, to an audio-video format, before its entrance to direction room 1;

-selection of the signal/s to be used and sent,

respectively, to the attendants and the speakers by an entrance audio-video matrix MV1;

-addition of the necessary audiovideo contributions and effects, as well as of titles, soundtracks, commentaries, graphs, and so on, by mixer video MIX or computer with analogous functions:

-selections of the processed audiovideo signals and their forwarding to the several remote locations 2, as a function of the fact that at that moment they are attendants or speakers.

According to a particular aspect of the process described above, while the attendants receive the audio video signal from the speaker, the latter will be capable of receiving a different audio signal which has been selected by the direction room.

For example, the speaker will be capable of receiving an overview of all the attendants or of some of them, just by using a device that selects the desired signals from the signals AV of the several locations and forwards them to the output audio video matrix for the following forwarding to the speaker.

Moreover, the speaker might have a graph that he is commenting to the attendants on his own screen, and these are bound to receive it full screen whilst seeing the image of the speaker himself superimposed or occupying a portion of the screen itself.

A second advantageous aspect of the present invention is that it is possible to send audio signal A coming from the speaker to an interpretation room I, wherein a simultaneous translation is carried out into

the languages required by the attendants.

The signal that is sent to each attendant therefore consists of the video signal (V1, V2,..., Vn) *ad hoc* selected for him, to which a suitable audio signal has been associated (A1, A2, ...,An), therefore
5 corresponding to the translation required by the user. It is obvious that more than one user can receive the same audio video signal AV.

Advantageously, according to the process that is
10 herein described, it is also possible to record the audio video signal for an archive, just as it is watched by the attendants, that is with the audiovisual contributions and the television effects that have been added.

15 In so far as the apparatus apt to carry out the process so far described is concerned, within it there may substantially be envisaged a plurality of user-locations 2 (fig. 1), which are remote and/or local, and of the multimedial or interactive type, possibly
20 equipped with a codifier/decodifier, otherwise called CODEC, with an aggregator that transforms the analog audiovideo signal AV into a digital signal, and linked to a direction room 1 that exchanges a signal AV of the analog or digital audio visual type.

25 Said signal AV contains a bunch of information relative to the conference and the speaker or the speakers that are given the right to speak from time to time, as well as other auxiliary audiovisual information.

30 Said user-locations 2 comprise audio visual

input/output means, such as for example computer or multimedial stations, tie-line linked-up locations, while the signal transmission between said locations and the direction room, and vice-versa, can take place
5 regardless through (analog and/or ISDN) telephone lines, which can themselves be aggregate or not, satellite transmission appliances, data transmission networks (including Internet), and so on.

The signal from each remote location 2, whether it
10 be digital or analog, is converted into an audiovideo signal, while afterwards it is sent to an audio video matrix MV1 which deals with all the signals and gives one or more output signals.

From a strictly practical point of view, direction
15 room 1 simultaneously receives signals AV from all users 2 connected to the video conference, and it further controls the audiovideo synchronism in each single channel and, if necessary, it suitably modifies it (any possible lacks of alignment can be generated by
20 several components: transmission, channel aggregation, reversion).

Signals AV coming from locations 2 are each visualised by a number of monitors and they are forwarded to audiovideo matrix MV1.

25 The signals which have been selected are sent to a video mixer MIX, or computer with analogous functions, which is apt to act as an interface with a series of appliances like Personal Computers PC, Videotape recorders VD1, cameras, titlers T, audio equipment, and
30 so on.

According to a peculiar aspect of the present invention, the employment of such video mixer MIX advantageously provides the addition to or the superimposition onto the videoconference signal, that
5 is the signal coming from the speaker, a series of audiovisual contributions such as titles, subtitles, musical themes, soundtracks, audio and video fadings, slides and/or graphs.

Furthermore it is possible to visualise the name
10 of the speaker that is talking in a certain definite moment, to carry out image superimpositions, to utilise and apply special effects and/or whatever other audiovisual contribution that makes the videoconference more versatile and adaptable to the needs of a specific
15 moment.

This means that it is also possible to superimpose, back up with or create effects between the image of the speaker and films that support his talk, or graphs that he is creating himself and/or changing
20 in that moment, and so on.

Advantageously, during a certain videoconference this makes it possible to emphasise moments of particular interest, and furthermore to underline relevant data during the talk, to highlight the aims to
25 accomplish and/or particularly relevant news for the topic which is being dealt with.

Thus, the audio video signal which has been elaborated by the video mixer MIX or by a computer with analogous functions, is forwarded to a second
30 audiovideo matrix MV2 and finally to a videotape

recorder VD2 which records the videoconference.

This second audiovideo matrix MV2, or visual
signal sorting-out device, supplies the audio-video
signals to be sent to each single user 2, whether they
5 be remote or local.

The two input and output commutation devices of
the direction room (audio video matrices MV1, MV2 or
analogous devices) ensure a total compatibility between
different videocommunication systems, through said
10 plurality of CODEC or specific interfaces, so as to
make it possible to carry out transmissions involving
apparati with technological features that made them
incompatible so far. Moreover it is possible to use
just one video matrix, if this is believed necessary by
15 the direction room, *in lieu* of the two abovementioned
ones.

As previously properly highlighted, another
peculiar feature of the present invention is given by
the fact that it is possible to capture audio signal A
20 before it reaches output audio video matrix MV2, so as
to make it possible to have a simultaneous translation
by one or more interpreters into the language or
languages used by the attendants if these explicitly
showed a need for it or if they made a clear request to
25 the organisation.

In other words, audio signal A that is sent into
interpretation room I for translation is then
associated to video signal V at the output of the
second audiovideo matrix MV2 in real time, in such a
30 way that the translation or the translations are

listened to by all the attendants that requested to be supplied with such a service.

Advantageously, according to the invention, direction 1 can intervene at any moment by using
5 audiovideo matrices, substituting audiovideo signal AV which is forwarded to one or more remote or local attendants 2 with audio video signal AVR, accomplishing an "intercom" type communication while the users who are not interested keep attending the videoconference
10 without any disruptions or interferences.

From what explained so far follows that signal AV which is elaborated by direction room 1 must be of the analog or digital audio video type: therefore the input and output signals, i.e directed to and coming from it,
15 which are not audio video, must be transformed before their employment and finally reftransformed at the very moment when they are to be sent to remote attendants in the analog or digital form.

These two input and output conversions at the
20 direction room, depend on the features of the link-up with the remote users, once again categorisable as digital or analogue, which can be carried out by means that the user believes more suitable: analogue, ISDN or aggregate ISDN telephone lines, satellite transmission,
25 computer networks (such as Internet for example), and so on.

From what described so far, it appears to be rather clear that all the attendants to the videoconference receive the audio video signal from the
30 person that is speaking. Advantageously though, by

doubling all the incoming signals, on the speaker's screen there will be found to be shown the attendant to whom he is answering directly or with whom he intends to engage in a discussion, or in a cyclical fashion, that is all the participants to the conference (one by one or by groups, resorting to audio video multi-signal simultaneous combination devices).

To said signal which is forwarded to the speaker another signal can be added or substituted, this latter having been selected by the direction.

This is accomplished by a targeted or cyclical selection device SR, whose output signal is exclusively sent to the user that is at that moment playing the role of speaker, or otherwise to a group of users,; this is done by resorting to the second audio video matrix MV2 and whatever else is believed to be most suitable for that purpose by the direction.

It is useful to observe that a cyclical selection can take place at controllable time intervals, by dint of a timer-programmer or a computer for example.

According to another peculiar feature of the present invention, the director has the possibility of selecting the speaker who is scheduled to talk at that moment and who will be shown full screen to all the other speakers and/or attendants 2. Together with that, it is also possible to keep the audio channel of all or part of the attendants 2 active, enabling the apparatus to automatically visualise the participants that take part briefly and temporarily, in the form of windows or pointers (spots) suitably placed on the

screen.

Another extremely advantageous aspect of the present invention is the possibility of transmitting the videoconference via Internet. By suitable
5 (aggregate or tie-line) connections between the direction room and the Internet provider, it is possible to broadcast the audio video signal AV of the videoconference, that comes from the audio-video output matrix MV2, and whatever Internet user.

10 Furthermore, by a suitable discussion group, each single user can ask questions, show examples and actively take part in the debate.

The chairperson or the person in charge of the videoconference will be capable of visualising all the
15 communications of the final users or attendants, by a computer PCM connected to the same discussion group.

He will be capable of ascertaining whether they are worth being addressed to one of the speakers that will be then able to answer through the channels and
20 the already described modalities of the videoconference.

If on the other hand the chairman will believe it suitable to personally let the Internet user UI contribute to the videoconference, direction room 1 is
25 capable of carrying out an unexpected but nonetheless possible telephone link-up AV-UI, turning the Internet user UI into an actor from spectator as he was, offering him a chance to come and take part in the conference just in the same manner as that given to the
30 other participants that are connected (provided that

said latecomer has the minimum equipment necessary for taking part in a videoconference which has the previously described modalities and features).

Advantageously, in the case of an Internet link-up, thanks to besides normal switch or ISDN telephone lines, the connection between the remote user and the provider can be carried out by dint of a mixed signal management system where the requests of the user are transmitted to the provider down the telephone lines, whereas the audio video signal of the videoconference or of the data which have been required can be received via satellite, leading to a drastic improvement of quality and increasing the speed of reception regardless of the traffic on the network and of the amount of users connected to it at that very moment.

Furthermore, using the Internet, it is possible to carry out transmission and data file exchange, regardless of the type of data therein contained, in a manner which is absolutely compatible with any type of computer or computer system.

Said remote or neighbour locations 2 may also comprise a camera and a microphone which are apt to send the audiovisual signal from a certain event like a parade or a sports match, to direction room 1 that is going to manage it in the most suitable manner.

According to the present invention, it is possible to conduct even very "intense" debates between a limited number of participants, avoiding frequent image changes; this is accomplished by subdividing the screen into adjacent windows and enabling the audio of the

entire discussion group. In this case there are found to be shown only those who are part of said restricted group of people on the screen and at the same time.

It is useful to notice that using CODECs, it is possible to control remote cameras based at locations 2. This means that the staff in the direction room is capable of showing or zooming details at their own discretion, by sending suitable directions that are bound to be executed by the camera located at the user's location.

In particular cases, it is finally possible to envisage link-ups between direction room 1 and the users exclusively via satellite.

The present invention can also be applied to other fields such as: conferences, training and refresher courses, sales, advertising, consultancy services, tourism and others.

The present invention has been described and illustrated according to one preferred embodiment, but it holds that whoever skilled in the art may well amend or change it without stepping out of the scope of the present patent.

AA134

CLAIMS

1. Process for carrying out and managing videoconferences among a plurality of users locations suitable to receive and transmit audio-video signals and located at whatever distance, using whatever communication protocol, characterised by the fact that it comprises the following steps:

- link-up a direction room (1) to a plurality of both remote and neighbour locations (2), where a signal of the audio video type (AV) is originated;
- conversion of the audiovisual signal (AV) from each location (2), before its transfer from the place where it was generated to that where the direction room is located (1), so as to make it suitable to the type of connection and transmission which are being utilised;
- Reconversion of the signal (AV) which has been received into the audio video format, before its arrival at the direction room (1);
- Selection of the signal or signals to use and send away to the attendants and the speaker respectively, by an input audio video matrix (MV1);
- Addition of the contributions and the necessary audio and/or video effects, as well as of titles, soundtracks, comments, images, graphs and so on, by a video mixer or a computer having similar functions;
- Selection of the processed audio video signals (AV) and sending thereof to the several remote locations (2), according to the role that the users who are there located play at that moment (i.e. attendants or speakers).

2. Process according to claim 1, characterised by

the fact that while the attendants to the conference receive the audio video signal from the speaker, the speaker receives a different audio video signal which has been selected at the direction room (1).

5

3. Process according to claim 2, characterised by the fact that the speaker receives an overview of the attendants (2), or of some of them, by the employment of a targeted or cyclical selection device (SR) that
10 selects the desired signals from the signals that arrive from the several locations, to further forward them to the output audio-video matrix (MV2), for their subsequent delivery to the speaker; said signals (AV) being capable of being simultaneously combined.

15

4. Process according to the preceding claims, characterised by the fact that the speaker is shown the graph that he is talking about to the attendants on his own screen, the attendants receiving said graph as a
20 superimposition or within a section of the image of the speaker himself or vice-versa.

5. Process according to the preceding claims, characterised by the fact that it provides for the
25 audio signal (A) from the speaker to be sent to the interpretation room (I) wherein a simultaneous translation into the languages required by the attendants is carried out: the signal which is sent to each attendant being therefore composed of the video
30 signal (V1, V2, ..., Vn) selected for him, to which the

AA 34

suitable audio signal (A1, A2,..., An) has been associated, i.e. the one that corresponds to the translation required by the user.

6. Process according to the preceding claims, characterised by the fact that more than one user can receive the same audio video signal (AV).

7. Process according to the preceding claims, characterised by the fact that it provides for the recording of the audio video signal for the purpose of archive or else, so well as it is actually seen by the attendants, that is enriched with the audiovisual contributions and the television effects that have been added, by a suitable videotape recorder (VD2) that receives the output signal of a video mixer (MIX) or computer with similar functions.

8. Apparatus for carrying out and managing videoconferences among a plurality of users located at whatever distance and using whatever communication protocol, characterised by the fact that it comprises a plurality of remote and/or neighbour user-locations (2), of the interactive or multimedial type which are linked to a direction room (1) which exchanges a signal (AV) of the analog and/or digital audiovisual type with them.

9. Apparatus according to claim 8, characterised by the fact that said signal (AV) contains a series of information relative to the conference and the speaker or the speakers that are scheduled to talk, as well as

other auxiliary audiovisual information.

10. Apparatus according to claims 8 and 9, characterised by the fact that said user-locations (2) comprise audiovisual input/output means; signal transmission between said locations and the direction room, and vice-versa, taking place regardless via (aggregate or not, analog and/or ISDN) telephone lines, tie lines, satellite transmission devices, data transmission networks (including Internet), and so on.

11. Apparatus according to claims 8, 9 and 10, characterised by the fact that said remote locations (2) are equipped with analog/digital audiovisual signal conversion devices, said signal being then sent to the direction room (1) using suitable communication protocols according to the type of link which has been accomplished.

12. Apparatus according to claims 8,9,10 and 11, characterised by the fact that the direction room (1) simultaneously receives the respective signals (AV) coming from all the users (2) linked-up to the videoconference, transforms them into audiovisual signals by dint of said conversion devices and singly visualises them on a series of monitors; said signals (AV) are then channeled into an audio video matrix (MV1) that makes it possible to send just the signals coming from the speaker or speakers to the video mixer (MIX), in such a way that they are seen by all the

other attendants, with possible image fadings or other effects.

13. Apparatus according to claims 8, 9, 10, 11 and
5 12, characterised by the fact that the signals (AV)
selected by means of the audio video matrix (MV1) are
forwarded to a video mixer (MIX), or a computer with
similar functions, which is capable of interfacing with
a number of appliances such as computers (PC), video
10 tape recorders (VD1), cameras, titlers (T), audio
equipment, and so on; said video mixer (MIX) making it
possible to add to or superimpose onto the
videoconference signal, that is to that from the
speaker, a series of audiovisual contributions such as
15 titles, subtitles, musical themes or soundtracks, audio
video fadings, slides and/or graphs, visualising them
full screen or on a portion thereof.

14. Apparatus according to claims from 8 to 13,
20 characterised by the fact that it provides for the
visualisation of the name of the speaker that is
talking at a certain moment, for the carrying out of
image superimpositions, for the use of special effects
and/or whatever other type of audiovisual contribution
25 that makes the conference more versatile and adaptable
to the specific need of a certain moment; said
apparatus further providing for the superimposition,
the placing side by side or the creation of effects
between the image of the speaker and of films backing
30 up his talk, or of graphs that he himself is making or

changing at that very moment, and so on.

15. Apparatus according to claims from 8 to 14,
characterised by the fact that the audio video signal
5 (AV) as it is processed by the video mixer (MIX), or by
a computer with similar functions, is sent to a second
audio video matrix (MV2), or an analogous audiovisual
signal sorting-out device, that provides for the signal
to be forwarded to each single user (2), regardless of
10 whether they be remote or local.

16. Apparatus according to claims from 8 to 15,
characterised by the fact that the two input and output
commutation devices of the direction room (MV1, MV2)
15 ensure a total compatibility between different
videocommunication systems, by said plurality of
conversion devices, so as to provide for the
transmission between equipments that belong to
technological realitites that have so far been
20 incompatible.

17. Apparatus according to claims from 8 to 16,
characterised by the fact that the audio signal (A) is
captured before it reaches output audiovisual matrix
25 (MV2), so as to make it possible to carry out a
simultaneous translation by one or more interpreters
into the language or languages of one or more users (2)
that may require it.

18. Apparatus according to claims from 8 to 17,
30 characterised by the fact that the audio signal (A)

that is sent to an interpretation room (I) for the translation, is subsequently associated to the video signal (V) exiting the second audio video matrix (MV2) in real time, in such a way that the translation or the translations are respectively listened to just by all the users that make an explicit request for them.

19. Apparatus according to claims from 8 to 18, characterised by the fact that the audio video signal (AV) as elaborated by the video mixer (MIX), or by a computer with similar functions, is forwarded to a videotape recorder (VD2) that records the videoconference.

20. Apparatus according to claims from 8 to 19, characterised by the fact that the direction (1) can take part in whatever moment, by replacing the audio video signal (AV) which is sent to one or more attendants (2), regardless of whether they be remote or local, with an audio video signal of its own (AVR), accomplishing an "intercom" type communication while the users who are not interested keep following the videoconference without any disruption or interference.

21. Apparatus according to claims from 8 to 20, characterised by the fact that the signal (AV) which is elaborated by the direction room (1), is of the audio-video type: therefore the incoming signals from it that are not in the audio video format must be transformed before their utilisation and possibly retransformed

into an analog or digital form at the moment of their forwarding to remote attendants; said input and output conversions at the direction room depend on the systems used and on the analog or digital features of the link-up, with each single remote user, which be accomplished by the means that the user believes to be most suitable: analog ISDN or aggregate ISDN telephone lines, tie-lines, satellite transmissions, computer networks (e.g. Internet), and so on.

10

22. Apparatus according to claims from 8 to 21, characterised by the fact that all the attendants to the videoconference receive the audiovisual signal selected by the direction, of the person that is talking, while on the speaker's screen there is found to be visualised the attendant to whom he is answering directly, or with whom he intends to discuss, or, in a so called cyclical fashion, all the attendants to the conference (one by one or in groups); for this purpose, the doubling of all the incoming signals (AV) being provided.

20

23. Apparatus according to claim 22, characterised by the fact that said selection of the signal sent to the speaker is obtained by dint of a video matrix and a cyclical visualisation device, with the possibility of simultaneously combining more than one audiovisual sources, controlled by a timer-programmer or by a computer; the resulting signal being only sent to the speaker and/or some particular users, by the output

30

video matrix (MV2), if the direction believes it necessary.

24. Apparatus according to claims from 8 to 23,
5 characterised by the fact that, according to schedule or else, the director can select the speaker who is scheduled to talk, who is bound to be visualised to all the other attendants to the conference and or spectators.

10

25. Apparatus according to claims from 8 to 24,
characterised by the fact that keeping the audio channel active of all or part of the attendants to the conference (2), this makes it possible to automatically
15 visualise the participants that take part temporarily and briefly, by the employment of windows or spots.

26. Apparatus according to claims 8 to 25,
characterised by the fact that thanks to suitable
20 (aggregate or tie-line) link-ups between the direction room and an Internet Provider, it is possible to transmit the audiovisual signal (AV) of the videoconference, that comes from the outgoing audio video matrix (MV2), to any Internet user.

25

27. Apparatus according to claim 26, characterised by the fact that by a suitable discussion group, any single user can ask questions, show examples and actively take part in the debate; a chairperson being
30 capable of visualising on his own monitor all the

communications between the final users or spectators by a computer, and of ascertaining whether to turn them to one of the speakers that can answer using the channels and modalities of the videoconference which have
5 already been described.

28. Apparatus according to claim 27, characterised by the fact that if the chairperson on the other hand believes it suitable to let an Internet user (UI) take
10 part in the debate, the direction room (1) is capable of carrying out an unexpected but viable telephone link-up (AV-UI) turning the Internet user into an "actor" from being a "spectator", and offering him the possibility of getting to take part in the
15 videoconference just in the same fashion as the other attendants who are already connected (with the proviso that the latecomer is sufficiently equipped for taking part in the videoconference with the modalities and features which were previously described).

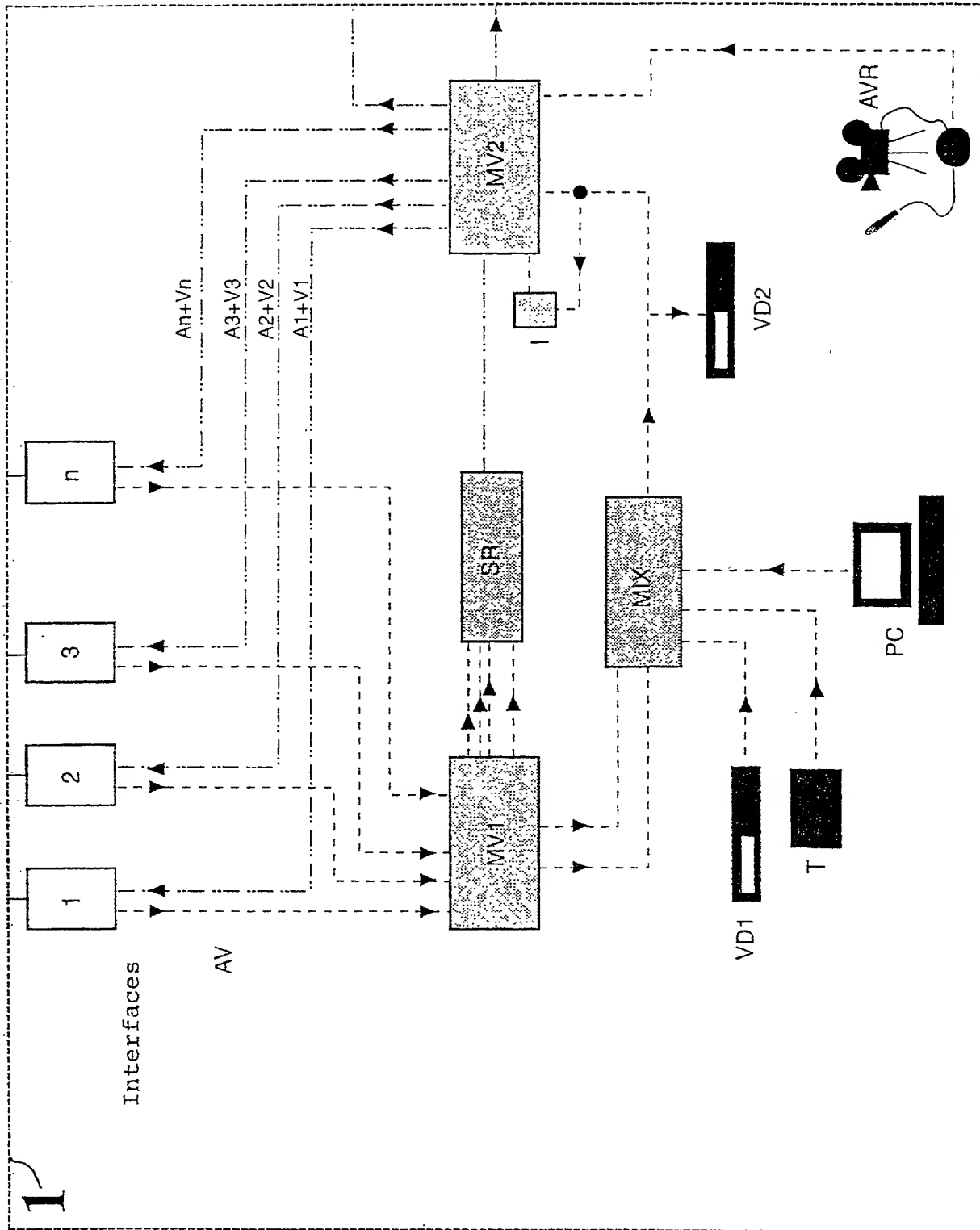
20

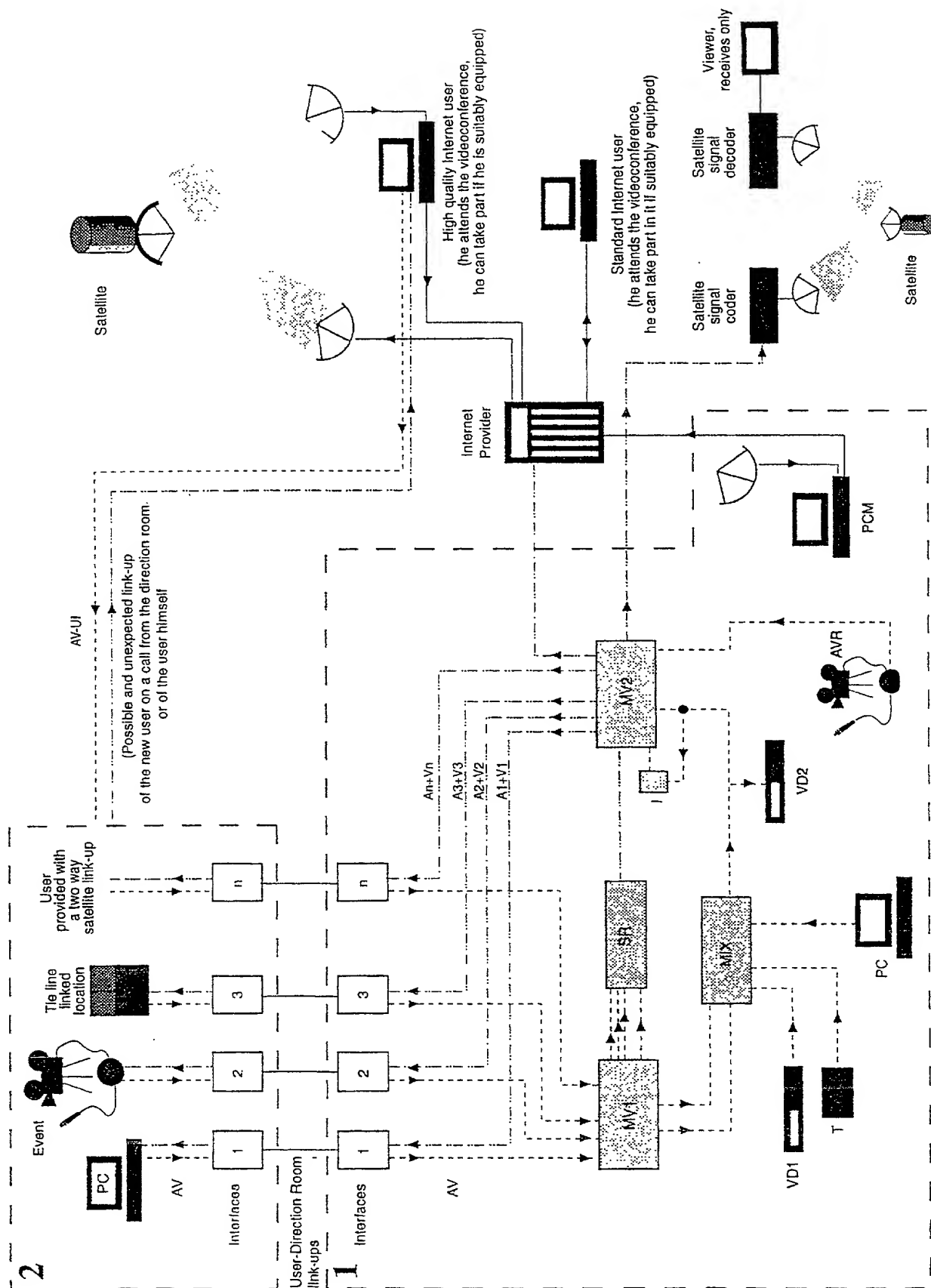
29. Apparatus according to claims 8 to 28, characterised by the fact that in case of an Internet connection, besides by normal switch or ISDN telephone lines, the link-up between remote user and provider can
25 take place thanks to a mixed signal management system where the requests made by the user are transmitted to the provider by telephone, while the audio video signal relative to the videoconference or the data which have been requested can be received via satellite,
30 drastically augmenting the quality and the reception

speed, regardless of the traffic on the network and of the amount of users who are connected at that moment; it being further possible to carry out the transmission and the data file exchange whatever type they are, in a manner which is absolutely compatible with whatever type of computer or computer system.

30. Apparatus according to the preceding claims, characterised by the fact that said remote or neighbour locations (2) can also comprise a camera and a microphone which are apt to forward the audiovisual signal that comes from an event, a parade, sports events or else, to the direction room (1), which is going to use it in the most suitable way.

31. Apparatus according to the preceding claims, characterised by the fact that the connections between the several locations, whether they be remote or local, and the direction room, are managed by dint of the normal known link-up procedures that can be by means of a telephone line carrier , by direct phone calls, by Internet network, via satellite, tie-lines, and so on.





COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PROCESS FOR CARRYING OUT VIDEOCONFERENCES WITH SIMULTANEOUS INSERTION OF
AUXILIARY INFORMATION AND FILMS WITH TELEVISION MODALITIES.

the specification of which: *(check one)*

REGULAR OR DESIGN APPLICATION

- ☐ is attached hereto.
- ☐ was filed on _____ as application Serial No. _____ and was amended on _____ (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

- ☒ was described and claimed in International application No. PCT/IT98/00149 filed on June 4, 1998 and as amended on _____ (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

PRIORITY CLAIM

I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

Country	Application Number	Date of Filing (day, month, year)	Priority Claimed

(Complete this part only if this is a continuing application.)

I hereby claim the benefit under 35 USC 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

(Application Serial No.)

(Filing Date)

(Status--patented, pending, abandoned)

POWER OF ATTORNEY

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from _____ as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

As a named inventor, I hereby appoint the following attorney(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: **Robert J. PATCH, Reg. No. 17,355, Andrew J. PATCH, Reg. No. 32,925, Robert F. HARGEST, Reg. No. 25,590, Benoît CASTEL, Reg. No. 35,041, Eric JENSEN, Reg. No. 37,855, Thomas W. PERKINS, Reg. No. 33,027, and Roland E. LONG, Jr., Reg. No. 41,949, c/o YOUNG & THOMPSON, Second Floor, 745 South 23rd Street, Arlington, Virginia 22202.**

Address all telephone calls to Young & Thompson at 703/521-2297.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: Roberto TRINCA
(given name, family name)

Inventor's signature

[Signature]

Date 11-30-2000

Residence: Via Casetta Mattei, 151
I-00148 Roma - Italy

Citizenship: Italian

Post Office Address: Via Casetta Mattei, 151 - I-00148 Roma - Italy

Full name of second joint inventor, if any:
(given name, family name)

Inventor's signature

Date

Residence:

Citizenship:

Post Office Address:

Full name of third joint inventor, if any:
(given name, family name)

Inventor's signature

Date

Residence:

Citizenship:

Post Office Address: